

OGDEN ARSENAL, BLACK POWDER SCREENING BUILDING HAER No. UT-84-AX
(OGDEN ARSENAL, BUILDING 2002)
(OGDEN ARSENAL, BUILDING 1002)
7745 Navajo Way
Layton Vicinity
Davis County
Utah

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
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Denver, Colorado 80225-0287

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Location: 7745 Navajo Way, Primer Loading Plant, Hill Air Force Base, Layton Vicinity, Davis County, Utah

Note: For shelving purposes at the Library of Congress, Layton Vicinity in Davis County was assigned as the "official" location of Hill Air Force Base. Building 1948 is actually in the Ogden Vicinity of Weber County.

Date of Construction: 1942

Architect: Unknown

Builder: Unknown

Present Owner: Hill Air Force Base

Present Use: Storage

Significance: Building 2002 housed the Black Powder screening and blending operations for primers used in 37mm anti-tank ammunition that was produced at Ogden Arsenal during World War II. The building provides particularly vivid images of the processes involved in the manufacture of munitions at Ogden Arsenal and contributes to an understanding of the U.S. Army build-up which occurred on the eve of and during World War II.

History: The introduction of various types of ammunition manufacture at Ogden Arsenal during World War II necessitated the construction of many new buildings which took various forms as related to their specific functions within the overall manufacture and storage processes. Black powder was screened and blended in Building 2002, the equipment used was powered by an electric motor located in Building 2002, located seven feet to the east. Black powder is an explosive that is sensitive to impact, friction, and sparks. The Motor House was detached from the Screening Building to prevent sparks from igniting the black powder while it was being processed.

Black Powder was the explosive ingredient used in primers for 37mm anti-tank ammunition that was manufactured at Ogden Arsenal during World War II. It is an explosive mixture of potassium nitrate, sulfur, and charcoal. These elements were finely ground, screened through aluminum sieves, and blended together in Building 2002. Using copper scoops, the blended black powder mixture was then drawn into 1 pint rubber cups that were placed in wood explosive transfer boxes.

An explosive transfer cart was used to transfer these boxes from Building 2002 to a rest house, where they were stored in small quantities before going to the Black Powder Dry House (now demolished). In the Dry House, loose black powder was compacted in rolling mills and then pressed into cakes using hydraulic presses. The cakes were then broken and classified by grain. The resulting granules were polished with graphite, which allowed the mixture to be freely poured into primer bodies in the Primer Loading Building (Building 2014).

Due to the highly volatile nature of black powder, both of these buildings were designed in the "Arsenal Style," with a concrete skeleton that supports lightweight hollow tile block walls that were engineered to absorb and deflect the force of an explosion outward, away from the rest of the building. Originally, the interior walls of both buildings were coated with "Keene's Cement," a hard, white, high-strength plaster made by adding alum to burning gypsum.

General

Description: Building 2002, located in the original Primer Loading Plant Area, is a one-story, gable-roofed building with a five-foot eave overhang above the double door entry. This is the only black powder screening facility of its type remaining on the Base. It measures 23' x 14'-6" and is made of poured concrete columns infilled with the red hollow tile characteristic of the "Arsenal" style. The roof has the common 4:12 pitch with the original corrugated asbestos surfacing. The structure consists of exposed light steel framing, with a 12-inch copper ventilators with a damper centered on the asbestos ridge roll. The interior of the building contains two rooms that are on two separate levels; one room is on ground level, while the other is elevated approximately 4'-6" above grade. A four-foot high linoleum wainscot lines the bottom half of the interior walls of both rooms. Linoleum was also used on the floor, over a 4-inch concrete slab. This concrete slab rested on a layer of 4-inch hollow tile laid over a 6-inch cinder base. The sidewalk outside of the entry consists of a poured concrete slab reinforced with welded fabric atop the 6-inch cinder bed. The sidewalk outside of the entry consists of a poured concrete slab reinforced with welded fabric atop the 6-inch cinder bed.